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(54) **Device for preventing from insect penetration through a window.**

(57) A device for preventing from insect penetration through a window with swinging or pivoted window leaf (2) comprises insect net being arranged in a peripheral frame (6) which is disposed before a window frame (1) and fastened to an outer lamella member of a group (8) of lamella members surrounding a periphery of the window frame (1). Said group (8) of the tipping lamella members comprises

an outer covering lamella (12), at least one distance lamella (11) and a fastening lamella (9) which are made as rectangular frames from planar lamellic strips and which are attached on two corners thereof to pivots (10), wherein fan-like spreading of the lamella members is restricted by folded seams (13) formed on edges of the lamella strips.

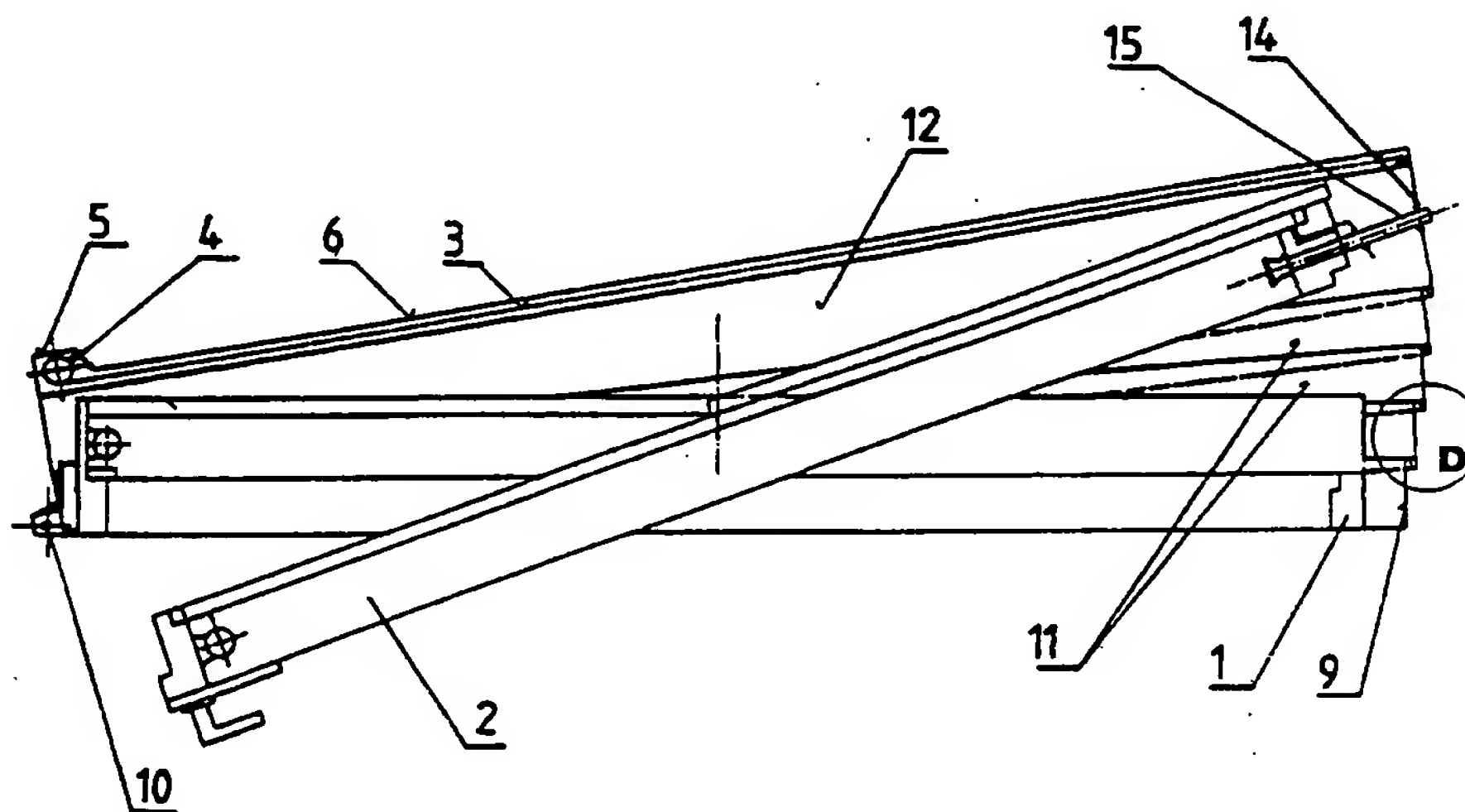


Fig. 4

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Technical Field

The present invention relates to a device for preventing insect from penetration through a window with swinging or pivoted window leaf, comprising insect net being arranged in a peripheral frame disposed before a window frame.

Description of the Prior Art

Windows with pivoted window leaves having vertical axes of rotation are protected against insect invasion by insect nets which are fastened in a rigid frame being fastened stationary or releasably in the window frames. The said most current solution is not applicable on windows having swinging window leaves, which one half swings outwards from the window opening about horizontal or vertical axis. For this case, a two-part insect net has been proposed, one part of which is fastened to an outer surface of the window frame on three sides of a periphery thereof and against one half of the inwards opened window leaf and a fourth side of the net periphery is fastened by means of fastening bands to a window pane of the window leaf. Fastening of the second part of the insect net on the other half of the window against a second half of the outwards opened window leaf is solved similarly in the said second part of the insect net which is provided with cut-outs through which control closing fittings of the window leaf may pass during opening movement of the window leaf.

The insect net is fastened to the window frame in the said known solution by clamp bars which are secured thereon and which are provided with a cylindrical grooves and the insect net edges are inserted and secured in the said cylindrical grooves by cylindrical sticks forced therein. The net is fastened to the window frame in substance definitely and cleaning of the window leaf is allied with necessity of time consuming releasing of the fastening means and removing the insect net. By the said solution, it is not possible to attain perfect sealing of contact areas between the insect net and the window pane or the window frame in an area of swinging hinges and particularly in areas of cut-out for the closing fittings.

The aim of the invention is therefore to solve a device for preventing from insect invasion through a window which would be proper for windows with swinging window leaves or with pivoted leaves having horizontal or vertical axes of rotation disposed in a centre or on edges of the window leaf. The device should reliably prevent insect from invasion into indoor rooms of a house, when windows are opened, and should enable intensive ventilation and carrying-out maintenance working operations, especially window part cleaning and window frame

painting. The device should satisfy also the aesthetic and architectonic requirements on outer appearance of the building in its entirety. The device should ensure sufficient service life, simple manipulation and maintenance and easy mounting.

Summary of the Invention

The said tasks are solved by the device according to the invention which device prevents insect penetration through the windows with swinging or pivoted window leaves comprising an insect net being arranged in a peripheral frame disposed before a window frame, wherein the subject-matter of the said invention consists in that the peripheral frame with the insect net is fastened to an outer lamella member of a group of lamella members surrounding the window frame about periphery thereof and being swingable around pivots which are disposed on one side of the window frame.

In an advantageous realization of the invention, the said outer lamella member of the lamella member group is a three-dimensional covering lamella made of lamellic strips connected on ends thereof into a rectangular frame and being oriented by their planes perpendicularly to a frame plane, wherein the said covering lamella is attached on one side thereof to the pivots which are attached to edge parts of at least one other three-dimensional lamella being disposed inside the covering lamella and outside a fastening inner lamella which is fastened to an outer side of the window frame.

The covering lamella is in accordance with other advantageous embodiment of the invention provided with a folded seam on its edge diverted from the peripheral frame being directed to an adjacent distance lamella which is provided with an outer folded seam on an one edge thereof and with an inner folded seam on an opposite edge thereof, wherein the fastening lamella is provided with an outer folded seam on a lamella edge abutting to the peripheral frame and all folded seams of the adjacent lamella members are arranged for clinching one to another.

In an other embodiment of the invention, the covering lamella is provided with at least one hole on one side thereof which is positioned against a hole in the cross-bar of the window frame and a connecting pin is slidably seated in the said hole.

The said peripheral frame for the insect net is in an other embodiment of the invention hollow on at least three sides of said frame and a longitudinal cavity thereof communicates with a space bounded by said peripheral frame through slots and a roller net is guided in said slots and is rolled on a winding rod on one side of the peripheral frame and the said winding rod is mounted in a box cover.

The device according to the invention prevents perfectly insect from flying or from creeping into rooms of buildings, does not affect the structure of the window and has no disadvantageous influence upon outer appearance of the window and precincts thereof and upon using and maintenance of the window leaf. The system of three-dimensional lamella members opens during opening of the window leaf into fan-shaped group of the members which edges clinch in fully opened position of the lamellas one into another by edge connecting locking being formed by pairs of opposite oriented folded seams, so that the whole circumference between edges of the window leaf and the window frame is perfectly tightened, wherein so solved absolute closing of the window opening prevents insect from penetrating while preserving a possibility of effective aeration by drawing the roller net into a draw-out position by means of a string leading into the room of housing-

Brief Description of the Drawings

Further features of the present invention will become apparent to those skilled in the art to which the present invention relates from reading the following specification with reference to the accompanying drawings, in which:

- Fig. 1 is a lateral view of the device preventing from insect penetration through the window with the swinging leaf swivelling about the horizontal axis disposed in the leaf centre;
- Fig. 2 is a plan view on the device from Fig. 1 being mounted in the window with swinging window leaf;
- Fig. 3 is a longitudinal section of the device for preventing insect penetration being mounted on the window with opened swinging window leaf;
- Fig. 4 is a cross sectional view of the device mounted on the window with closed swinging window leaf along plane B-B in Fig. 2; and
- Fig. 5 is a vertical cross sectional view of a detail D from Fig. 4.

Description of Example Embodiments of the Invention

A device for preventing insect from penetration through an opened window is fastened on a window frame 1 in which a swinging window leaf 2 is mounted, wherein the said swinging window leaf 2 is in the drawn embodiment a roof appartement window leaf; the said device is applicable also in vertical mounted windows with swinging window leaves being rotatable about horizontal or vertical

axes disposed in centres or on an edges of the window leaves or on pivoted window leaves pivoting about vertical axes which at least one part turns outwards from a plane of wall opening during window leaf movement.

The device according to the invention is mounted on an outer side of the window frame 1 and above him and covers the said window frame 1 on the whole periphery and from an upper side thereof. The said device for preventing all flying insect from penetration around the opened window leaf 2 into particularly appartement buildings is provided with a roller net 3 made of insect net and rolled on one cross side of the window frame 1 on a winding rod 4 which is connected with a winding spring and is mounted in a box cover 5 forming one cross bar of a peripheral frame 6 serving for insect roller net 3 seating. Two longitudinal sides of the peripheral frame 6 are formed by guiding bars 7 of channel shape with U or C contour, wherein longitudinal edge parts of the roller net 3 are guided through slots of said guiding bars 7. A second cross side of the peripheral frame 6 being opposite to the box cover 5 is arranged for fastening a forward reinforced edge of the roller net 3 which, after drawing and fastening in pulled out condition, closes thorough the whole inner space of the peripheral frame 6.

The peripheral frame 6 is mounted on an upper edge of a group 8 of tipping lamella members being inserted in a closed state one into another. Said group 8 of tipping lamella members comprises a three-dimensional inner fastening lamella 9 which is fastened to two longitudinal bars of the window frame 1 on the sides thereof and which provided a shape of a rectangular frame or U-shaped frame, wherein frame bars of the fastening lamella 9 are planar lamella strips made of metal sheet or plastics and being oriented perpendicularly to frame plane. Said fastening lamella 9 is provided with pins 10 on two opposite corners of a shorter side of the window frame 1, said pins 10 serve for turnable attaching the elements of the group 8 of tipping lamella members.

A group of three-dimensional distance lamellas 11 having shape of rectangular frames of U-shaped frames is attached on both corners of both longitudinal sides of said frames to the pair of pins 10 on outer sides of the fastening lamella 9. The device according to the invention is provided with three distance lamellas 11 in said embodiment and said distance lamellas 11 are inserted one into another so that each next distance lamella 11 has side frame bars longer than the adjacent inner distance lamella 11.

Extreme outer element of the group 8 of tipping lamella members is a covering lamella 12 being disposed on periphery of the last outer dis-

5 tance lamella 11 and having form of a rectangular frame with frame bars consisting of planar strips made of metal sheet or plastics, wherein said bands are oriented perpendicularly to a frame plane. Said outer covering lamella 12 is attached in two opposite corners thereof to the pair of pins 10 and is therefore tiltable about axes of the pins 10. An upper edge of the covering lamella 12 is fastened to the peripheral frame 6 in which said roller net 3 is seated and guided.

The upper edge of the fastening lamella 9, lower and upper edges of the distance lamellas 11 and the lower edge of the covering lamella 12 are provided with folded seams 13 which ensure edge clinching of each lamella members of the group 8 one into another during window opening, as will be described in next part of the description. The covering lamella 12 is provided with two holes 14 in the cross bar being opposite to the pair of pins 10, wherein a pair of shiftable connecting pins 15 is introduced in holes in the cross bar of the window frame 1 and may slide out into holes 14 of the covering lamella 12.

The device for disablement insects from penetration through the window, in this case through the window with the swinging window leaf 2, may be mounted on a customary window after unhinging the swinging window leaf 2, wherein in a first mounting operation, the fastening lamella 9 is fastened to the outer sides of the window frame 1. Successive distance lamellas 11 are mounted on the fastening lamella 9 and finally the covering lamella 12 is seated, wherein each of the lamella members in said group 8 is attached in two opposite corners of the lamella frames to the pair of opposite pin 10. The peripheral frame 6 with coiled roller net 3 is then secured on the upper side of the covering lamella 12. All said working operations are carried out from the house room through an inner space of the window frame 1. After mounting the swinging window leaf 2 and closing the same is produced a guiding part for the shiftable connecting pins 15 by drilling holes in the cross bar of the swinging window leaf 2 and simultaneously in the same drilling operation the holes 14 in the covering lamella 12 for perfect coaxially disposing of all holes.

In applying the device according to the invention, the shiftable connecting pins 15 being inserted into the holes in the cross bar of the swinging window leaf 2 are first inserted into the holes 14 in the covering lamella 12, whereupon the swinging window leaf 2 may be opened. Said swinging window leaf 2 lifts during said opening movement in consequence of engagement of the shiftable connecting pins 15 with the holes 14 the covering lamella 12 which traps after lifting thereof into a height corresponding substantially to its own height

by its lower folded seam 13 with the upper folded seam 13 of the outer distance lamella 11, which begins raise up. During continuing movement of the swinging window leaf 2, other distance lamellas 11 are lifted successively and clinch one into another by the folded seams 13 on the edges thereof, until a full pulling out of the group 8 of tipping lamella members to a maximal extent will be attained, wherein in this state there are all folded seam 13 clinched one into another and the lamella members of the group 8 are opened into fan shape. After drawing out the roller net 3 from the box cover 5 on the peripheral frame 6 and clamping a forward end of the insect net on the cross bar of the peripheral frame 6, the whole space around the opened swinging window leaf 2 is perfectly closed by the group 8 of tipping lamella members on the one hand and by the roller net 3 on the other hand, so that insects may not penetrate into the inner space of residential buildings.

Claims

1. Device for preventing from insect penetration through a window with swinging or pivoted window leaf, comprising insect net being arranged in a peripheral frame disposed before a window frame, characterized in that the peripheral frame (6) with the insect net is fastened to an outer lamella member of a group (8) of lamella members surrounding the window frame (1) about periphery thereof and being swingable around pivots (10) which are disposed on one side of the window frame (1).
2. Device as claimed in claim 1, characterized in that the outer lamella member of the group (8) of said lamella members is a three-dimensional covering lamella (12) made of lamellic strips which are connected on ends thereof into a rectangular frame and are oriented by their planes perpendicularly to a frame plane, wherein said covering lamella (12) is attached on one side thereof to the pivots (10) which are attached to edge parts of at least one other three-dimensional lamella being disposed inside the covering lamella (12) and outside a fastening inner lamella (9) which is fastened to an outer side of the window frame (1).
3. Device as claimed in claim 2, characterized in that the covering lamella (12) is provided on its edge diverted from the peripheral frame (6) with a folded seam (13) which is directed to an adjacent distance lamella (11) provided with an outer folded seam (13) on an one edge thereof and with an inner folded seam (13) on opposite edge thereof, wherein the fastening lamella (9)

is provided with an outer folded seam (13) on a lamella edge abutting to the peripheral frame (6) and all folded seams (13) of the adjacent lamella members are arranged for clinching one to another.

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4. Device as claimed in claim 1 or 2, characterized in that the covering lamella (12) is provided on one side thereof with at least one hole (14) which is positioned against a hole in the cross-bar of the window frame (1) and a connecting pin (15) is slidably seated in said hole.

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5. Device as claimed in at least one of claims 1 to 3, characterized in that the peripheral frame (6) for the insect net has at least three hollow side cross bars and a longitudinal cavities of said cross bars communicate with a space bounded by said peripheral frame (6) through slots and the roller net (3) is guided in said slots and is rolled on a winding rod (4) on one side of the peripheral frame (6) and said winding rod (4) is mounted in a box cover (5).

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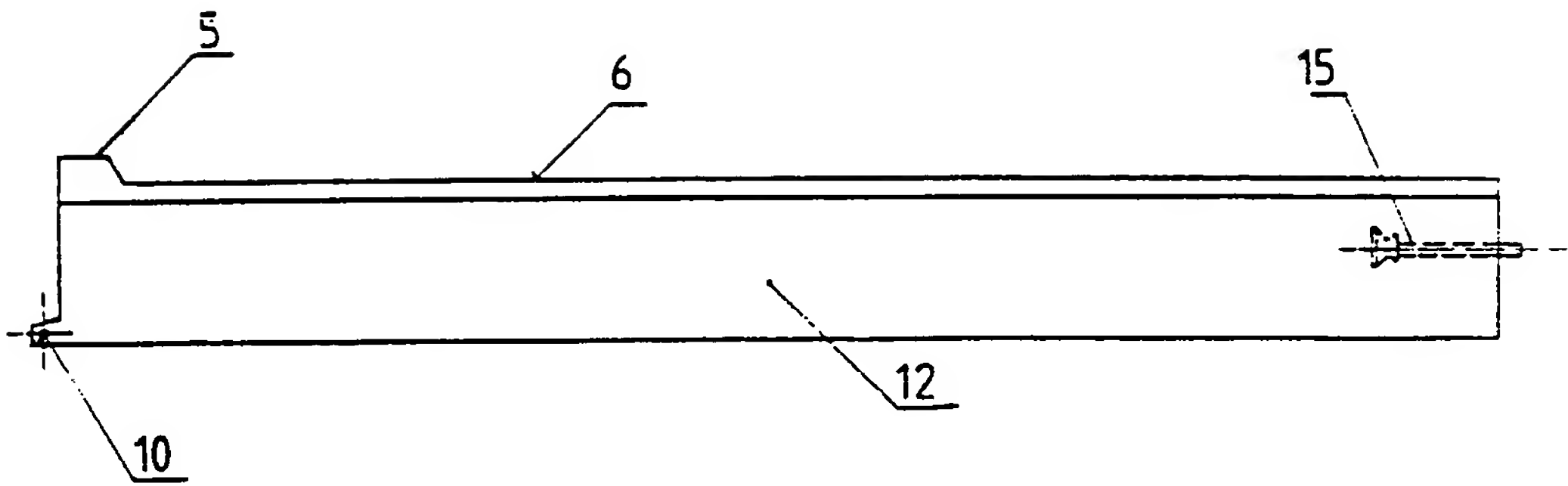


Fig . 1

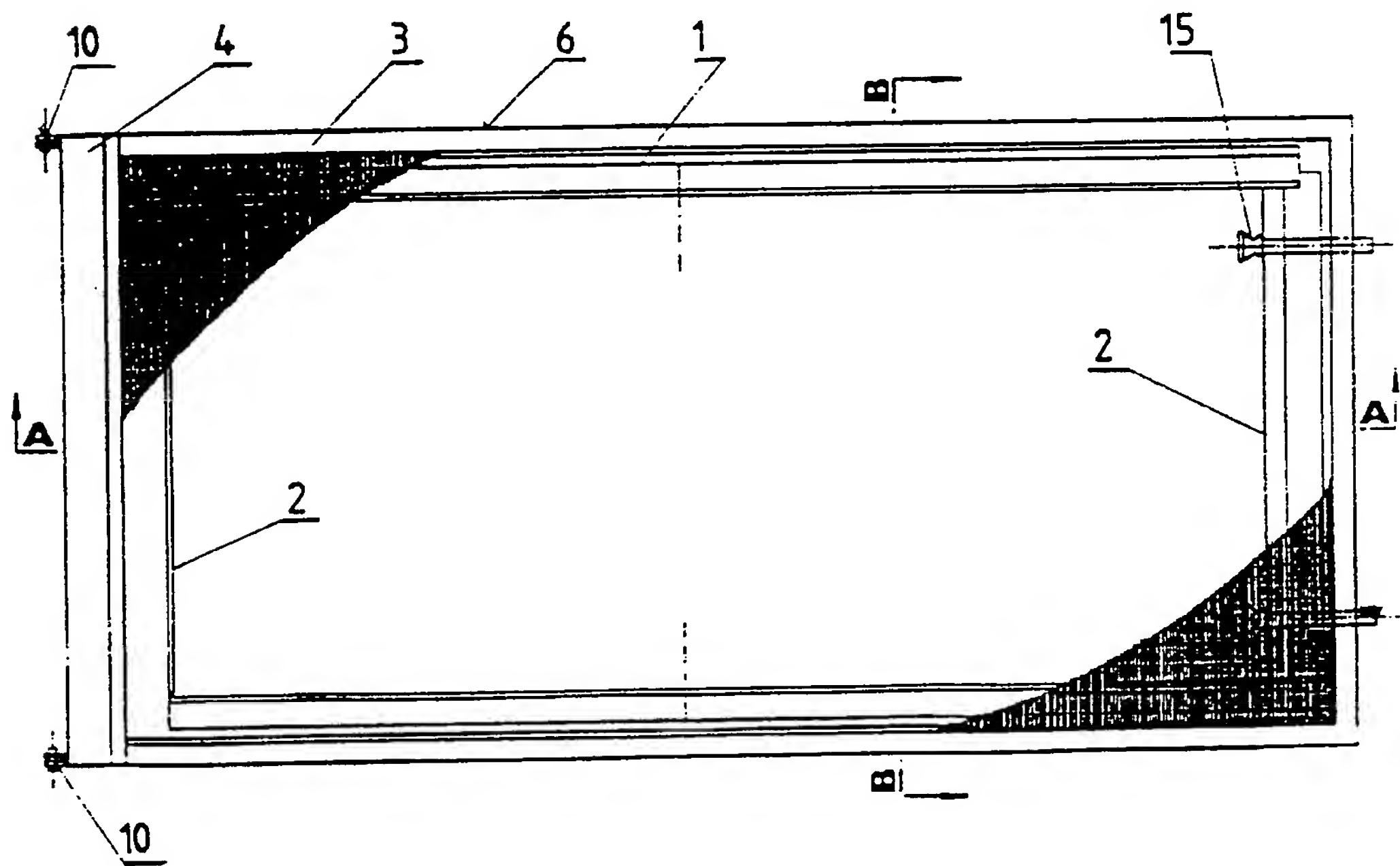


Fig . 2

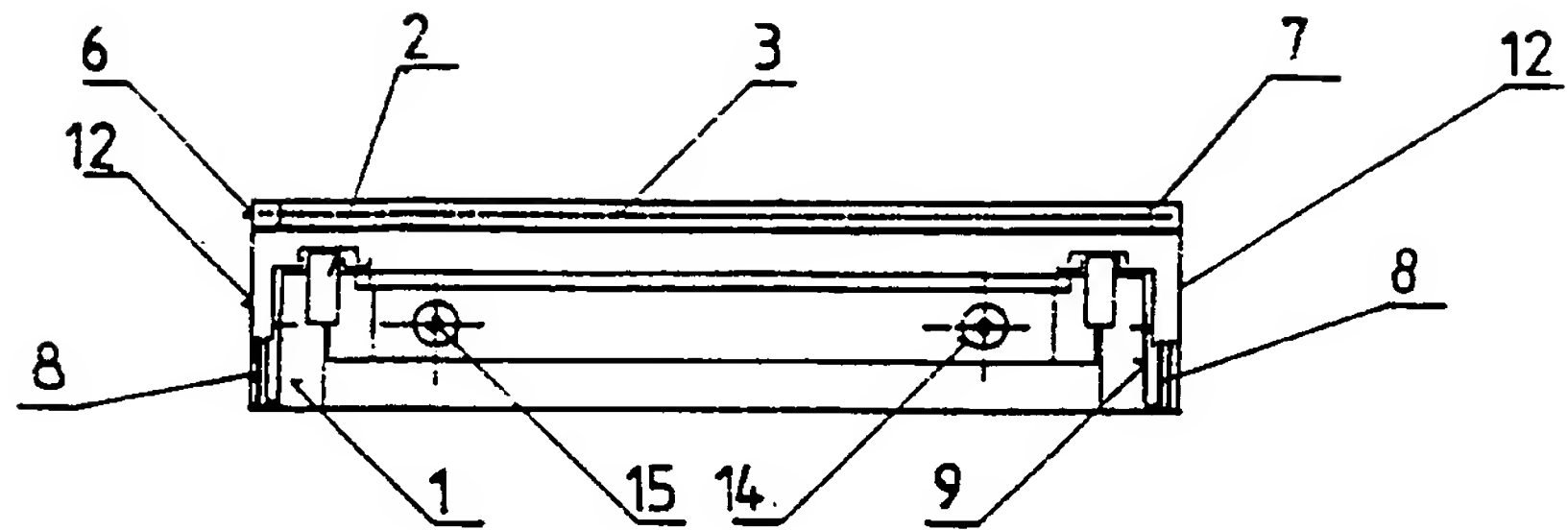


Fig. 3

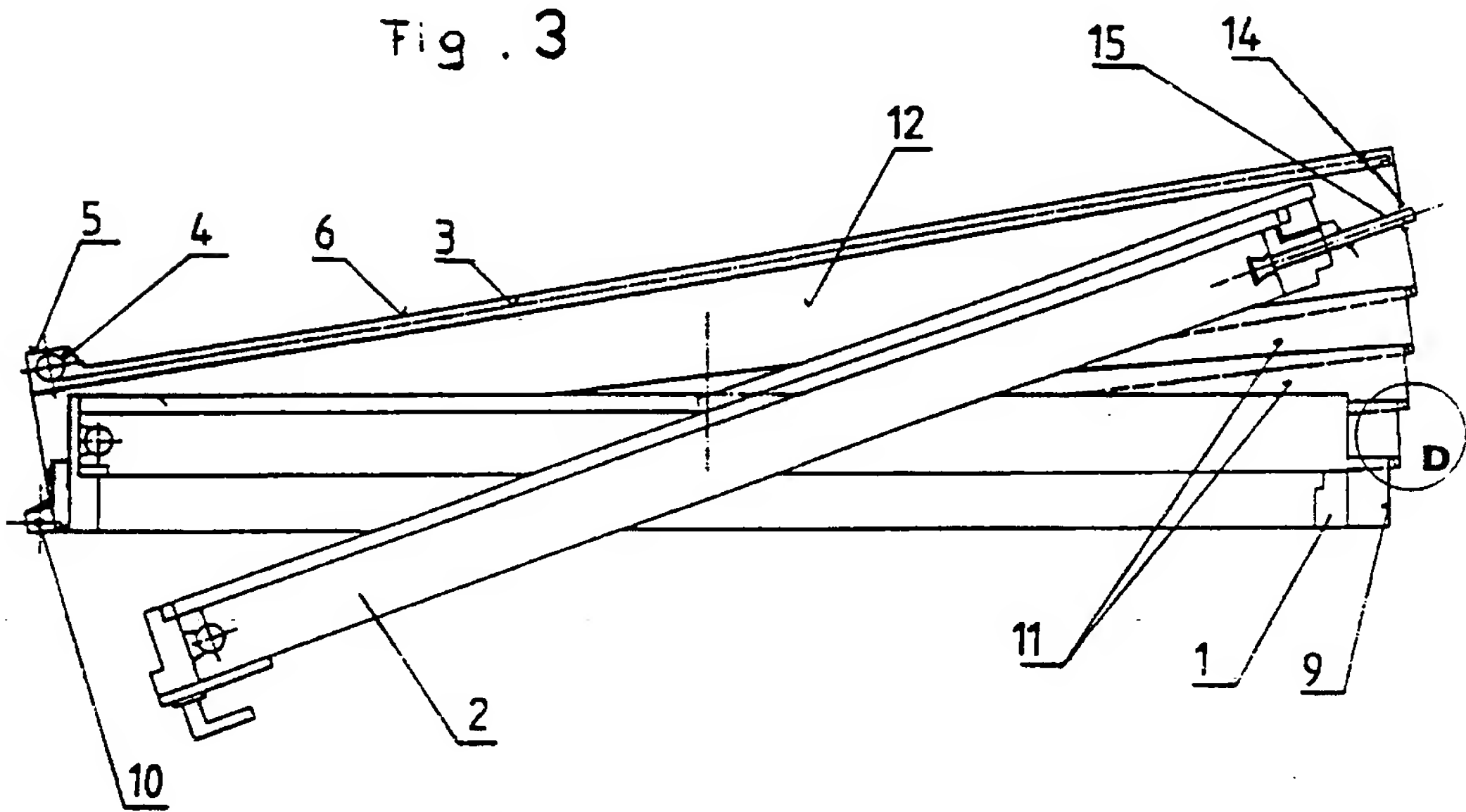


Fig. 4

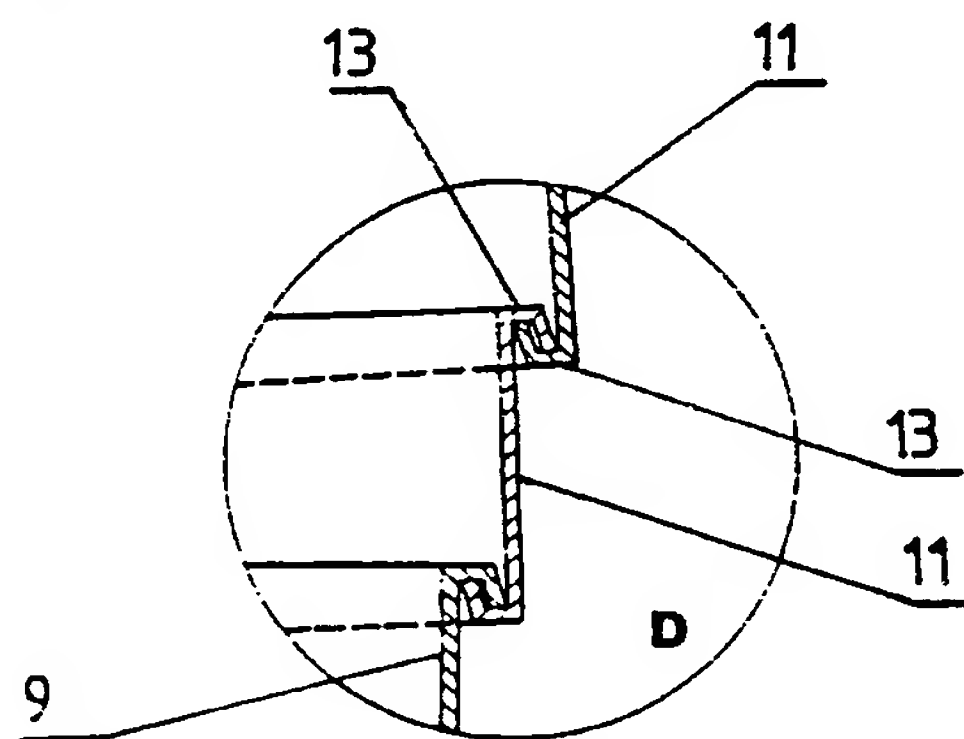


Fig. 5

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